CLAIMS:

1. A polishing composition comprising:

a reaction product produced by a reaction between a polyalkylene oxide and a compound having a functional group having reactivity with a hydroxyl group;

aluminum oxide;

a polishing accelerator including at least one salt selected from the group consisting of a metal salt of an inorganic acid or organic acid and an ammonium salt of an inorganic acid or organic acid; and

water.

2. The polishing composition according to claim 1, wherein the polyalkylene oxide is a copolymer of ethylene oxide and propylene oxide.

3. The polishing composition according to claim 1, wherein the compound is glycerin.

4. The polishing composition according to claim 1, wherein the reaction product is a polyoxyalkylene glycol of a triol-type.

5. The polishing composition according to claim 1, wherein the number average molecular weight of the reaction product is from 500 to 10,000 inclusive, and the kinematic viscosity at 25°C of the reaction product is from 50 to 5,000 mm^2/s inclusive.

6. The polishing composition according to claim 1, wherein the content of the reaction product in the polishing composition is from 1 to 30% by weight inclusive.

7. The polishing composition according to claim 1, wherein

the aluminum oxide is α-alumina.

8. The polishing composition according to claim 1, wherein the content of the aluminum oxide in the polishing composition is from 3 to 30% by weight inclusive.

9. The polishing composition according to claim 1, wherein the polishing accelerator includes aluminum salt of nitric acid, oxalic acid, or lactic acid.

10. The polishing composition according to claim 1, wherein the content of the polishing accelerator in the polishing composition is from 0.5 to 20% by weight inclusive.

11. The polishing composition according to claim 1, further comprising glycol represented by general formulae $H-(OCH_2CH_2)_n-OH$ or $H-(OCH(CH_3)CH_2)_m-OH$, wherein n is an integer of 1 to 230 inclusive and m is an integer of 1 to 180 inclusive.

12. The polishing composition according to claim 11, wherein the glycol is ethylene glycol or propylene glycol, or both.

13. The polishing composition according to claim 1, further comprising at least one metal oxide selected from colloidal silica, colloidal alumina, colloidal zirconia, colloidal titania, fumed silica, fumed alumina, fumed zirconia, and fumed titania.

14. The polishing composition according to claim 13, wherein the metal oxide is colloidal silica or colloidal alumina, or both.

15. The polishing composition according to claim 1, further comprising an antifoaming agent.

16. The polishing composition according to claim 1, further comprising cellulose.

17. The polishing composition according to claim 16, wherein the cellulose is hydroxyethylcellulose or microcrystalline cellulose, or both.

18. The polishing composition according to claim 1, wherein the pH of the polishing composition is from 2 to 7 inclusive.

19. The polishing composition according to claim 1, wherein the polishing composition is used for polishing synthetic resin products or metal products.

20. A method for polishing an object, the method comprising:

preparing a polishing composition, wherein the polishing composition includes:

a reaction product produced by a reaction between a polyalkylene oxide and a compound having a functional group having reactivity with a hydroxyl group;

aluminum oxide;

a polishing accelerator including at least one salt selected from the group consisting of a metal salt of an inorganic acid or organic acid and an ammonium salt of an inorganic acid or organic acid; and

water; and

polishing the surface of the object by using the polishing composition.